

What is Claimed is:

1. A method for preparing polyisoprene emulsion articles comprises the steps of.

(a) Preparing an aqueous polyisoprene emulsion;

5 (b) Blending water-dispersible vulcanization auxiliaries with said aqueous polyisoprene emulsion to form a blended polyisoprene emulsion;

(c) Aging said blended polyisoprene emulsion;

(d) Adding setting agent into said blended polyisoprene emulsion; and

(e) Dip-molding said blended polyisoprene emulsion into polyisoprene latex
10 articles.

2. the method, as recited in claim 1, wherein said polyisoprene emulsion in said step (a) is prepared by a free radical emulsion polymerization from isoprene monomers under a normal pressure.

15 3. the method, as recited in claim 1, wherein said polyisoprene emulsion in said step (a) is prepared by a co-polymerization through mixing monomers selected from a group consisted of styrene, acrylates and organic carboxylic acid with isoprene monomers;

20 4. the method, as recited in claim 3, wherein said acrylate is one or more compounds selected from a group consisting of methyl acrylate (MA), ethyl acrylate (EA), butyl acrylate (BA), iso-octyl acrylate (EHA), methyl methacrylate (MMA), and butyl methacrylate (BMA).

5. the method, as recited in claim 3, wherein said organic carboxylic acid is
25 one or more compounds selected from a group consisting of acrylic acid (AA),

methacrylic acid (MAA), maleic acid, fumaric acid, and methylenebutene dicarboxylic acid.

7. The method, as recited in claim 2, wherein the step (a) further comprises
5 the steps of:

(1) Charging a portion of said monomers together with an initiator and an emulsifier into a reactor to form a mixture;

(2) Reacting said mixture for 30~60 min. at a room temperature or under a gentle heating;

10 (3) Adding dropwise remaining portion of said monomers and other raw materials into said reactor for 3~6 hours.

(4) Reacting said mixture under a nitrogen atmosphere for 12~40 hours.

8. The method, as recited in claim 6, wherein the step (a) further comprises
15 the steps of:

(1) Charging a portion of said monomers together with an initiator and an emulsifier into a reactor to form a mixture;

(2) Reacting said mixture for 30~60 min. at a room temperature or under a gentle heating;

20 (3) Adding dropwise remaining portion of said monomers and other raw materials into said reactor for 3~6 hours.

(4) Reacting said mixture under a nitrogen atmosphere for 12~40 hours.

9. The method, as recited in claim 7, wherein said emulsifier in said step (1)
25 is a combination of an anionic emulsifier and a non-ionic emulsifier, said anionic emulsifier is selected from a group consisting of sodium dodecyl sulfate (SDS), sodium

dodecanesulphonate, and OS emulsifier, and said non-ionic emulsifier is nonylphenol polyethylene glycol oxide.

10. the method, as recited in claim 7, wherein a preferred amount of said emulsifier used in said step (1) is 5-30%(by weight), based on total amounts of said monometers.

11. the method, as recited in claim 8, wherein said emulsifier in said step (1) is a combination of an anionic emulsifier and a non-ionic emulsifier, said anionic emulsifier is selected from a group consisting of sodium dodecyl sulfate (SDS), sodium dodecanesulphonate, and OS emulsifier, and said non-ionic emulsifier is nonylphenol polyethylene glycol oxide.

12. the method, as recited in claim 8, wherein a preferred amount of said emulsifier used in said step (1) is 5-30%(by weight), based on total amounts of said monometers.

13. The method, as recited in claim 7, wherein said initiator used in said step (1) a redox system, wherein an oxidant is selected from a group consisting of a water-soluble persulfate and an oil-soluble peroxide; wherein a reductant is selected from a group consisting of sodium bisulfite, iron(II) sulfate; wherein a preferred amount of said initiator is 0.3-3%(by weight) based on a total amounts of said monometers.

14. the method, as recited in claim 7, wherein said step (a) further comprises a step adding a co-reductant, a complexing agent and a precipitating agent to maintain a concentration of a ferrous iron (II) ion for ensuring a steady reaction, wherein said co-reductant includes formaldehyde sulfoxylate (rongalite), said complexing agent is ethylenediamine trtraacetic acid (EDTA), and said precipitating agent is pyrophosphates.

15. the method, as recited in claim 7, wherein said water-dispersible vulcanization auxiliaries in said step (b) is selected from a group consisting of

vulcanizers, vulcanization accelerators, age inhibitors, and the like; wherein said vulcanizer is sulfur; said vulcanization accelerator includes sulfenamides and thiurams with an amounts of 0.5~10% (by weight); wherein a preferred amount of said vulcanization accelerator is 1~5% (by weight), based on an amount of said polyisoprene emulsion.

16. the method, as recited in claim 8, wherein said water-dispersible vulcanization auxiliaries in said step (b) is selected from a group consisting of vulcanizers, vulcanization accelerators, age inhibitors, and the like; wherein said vulcanizer is sulfur; said vulcanization accelerator includes sulfenamides and thiurams with an amounts of 0.5~10% (by weight); wherein a preferred amount of said vulcanization accelerator is 1~5% (by weight), based on an amount of said polyisoprene emulsion.

17. the method, as recited in claim 7, wherein said setting agent used in said step (d) is a mixture of cationic salts and auxiliaries, wherein said cationic salts is selected from a group consisting of hydrochlorides and nitrates of calcium ion, zinc ion, and aluminum ion; wherein a preferred amount of said setting agent is 10-30% (by weight) base on an amount of said polyisoprene emulsion.

18. the method, as recited in claim 8, wherein said setting agent used in said step (d) is a mixture of cationic salts and auxiliaries, wherein said cationic salts is selected from a group consisting of hydrochlorides and nitrates of calcium ion, zinc ion, and aluminum ion; wherein a preferred amount of said setting agent is 10-30% (by weight) base on an amount of said polyisoprene emulsion.

19. The method, as recited in claim 7, wherein said step (e) furthering comprises a step for dring said polyisoprene articles at 60~170°C.

20. A polyisoprene emulsion, having a weight average molecular weight of weight of $10^4 \sim 10^5$, pH of 6.0-7.0, viscosity of 5-20cp (25°C), solid content of 30-50%, and colloidal size of 100-200nm.

5 21. The polyisoprene emulsion, as recited in claim 20, being made from 60-100 parts by wight of isoprene monometer and 5-50 parts by weight of one or more monometers selected from a group consisting of styrene, acrylates, and organic carboxylic acids.

10 22. The polyisoprene emulsion article, as recited in claim 21, containing 10-50% said styrene by weight.

 23. The polyisoprene emulsion, as recited in claim 21, containing 10-50% said acrylate by weight.

15 24. The polyisoprene emulsion, as recited in claim 21, containing 1-10% said organic carboxylic acids by weight.

 25. A polyisoprene latex article, having a weight average molecular weight of weight of $10^4 \sim 10^5$, pH of 6.0-7.0, viscosity of 5-20cp (25°C), solid content of 30-50%, and colloidal size of 100-200nm.

20 26. The polyisoprene latex article, as recited in claim 25, being made from 60-100 parts by wight of isoprene monometer and 5-50 parts by weight of one or more monometers selected from a group consisting of styrene, acrylates, and organic
25 carboxylic acids.